1 Australia's Population Futures

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1.1 Executive Summary

There are four components that go into the making of population projections: fertility, mortality, migration and the size and age structure of the base population.

One of the central demographic lessons is that much of a population's future is contained in its present age structure, which, in turn, is primarily the result of its past fertility history. In broad terms, Australia's fertility was relatively low in the 1930s and 1940s, high in the 1950s and 1960s and very low in the 1980s and 1990s. This 70-year history of fertility is very much reflected in Australia's present age structure and is the central reason that we can be absolutely certain that Australia will experience substantial ageing of its population in the coming decades as the large number of births of the 1950s and 1960s replaces the small number born in the 1930s and 1940s at the older ages, while, at younger ages, there is no increase in the size of age cohorts.

While it is often stated that post-war immigration has kept Australia's population young, it has been shown that in fact this immigration had no impact at all on the age distribution of the Australian population. Falling mortality rates, particularly in the past 25 years, however, have contributed to population ageing (to a lesser extent than past fertility) and variations in future mortality levels can have a significant impact on the extent of population ageing. The existing age structure is what gives population futures "aircraft carrier" nature, that is, once at full stream, it takes some time to change direction.

This paper considers three components of population projections and then assesses the potential population futures for Australia. The purpose is not to predict future population but to provide the evidence of what would happen to Australia's population if certain scenarios were to prevail. This allows an assessment as to whether any of these scenarios are favoured on economic, social or environmental grounds and whether policy may be able to influence future demography in the direction of any favoured scenario.

The paper argues that there are good reasons to regard the standard projection as the minimum to which Australia should aspire. Projections based on lower fertility or lower migration than the standard move Australia in the direction of the coffin-shaped age structure with future falls in population and imminent falls in the labour supply.

The paper also argues that current average net overseas migration levels of around 80,000 per year have been comprised of approximately 50,000 permanent and 30,000 temporary movements. While this composition can continue for a while, it would mean that in 50 years time, we would have 600,000 temporary arrivals and 570,000 temporary departures. This is not a realistic scenario. If the projected population levels of the standard are to be achieved, this implies a significant increase in the share of permanent arrivals in the total of net overseas arrivals.

1.2 Introduction: the nature of population projections

When the National Population Inquiry (the Borrie Report) reported in the mid-1970s, future ageing of the population was not considered to be an important feature of Australia's population future. This was partly because none of the population projections included in the report considered the possibility that fertility would fall below the replacement level by 1978 and remain below replacement thereafter. For Borrie, the important decision was not whether fertility would fall in the future but whether the then very recent fall of fertility to replacement level would be maintained or whether it would rise again. He decided that the most likely future was that fertility would remain around replacement level. This meant that his assessment was closer to what actually was to happen than if he had made the decision that fertility would rise, but this assessment, together with a more pessimistic assumption about future mortality rates than indeed occurred, led to the Inquiry missing the most important demographic issue to emerge in the past two decades, namely, population ageing (National Population Inquiry 1975).

In this example, it was unfortunate for the Inquiry that the unpredicted changes in fertility and mortality occurred immediately after the Inquiry reported, that is, the projections of the Inquiry were proven to be wrong within a relatively short period after the report was tabled and ageing emerged as a central issue in the early 1980s. This indicates that demographic trends can change course within a relatively short time and that the best demographers of the day can fail to predict these changes. The other classic Australian example of population trends varying from the ensuing reality was the experience in the years following the Second World War. In 1949, Borrie considered that the surge of births after the war would be temporary and that the fertility rate in Australia would fall below replacement level in the 1950s when the early marriage pattern induced by the war was replaced by the more normal, 1930s pattern of marriage. He cited a population projection conducted for the Australian National Health and Medical Research Council that indicated that, with zero net migration, Australia's population would rise from 7.7 million in 1950 to a peak of 8.2 million in 1980. After

1980, the population would fall to 8.0 million by the year 2000 (Borrie 1949). As we now know, fertility rose considerably in the two decades following the war to produce what we now call the baby boom. Furthermore, the fear of population stagnation as indicted by the NH&MRC projection was one of the driving forces of early post-war immigration and population policy. In this case, the projection itself induced the policy change that in turn changed the demographic future of Australia and Borrie himself was centrally involved in the formulation of the post-war immigration programme.

Other examples could be cited, however, where demographic trends have not changed and projections of population have been relatively accurate. This has largely been the case over the past 20 years during which time there have not been major shifts in the direction of Australia's demographic parameters. This period has been more in keeping with the conventional conservative demographic approach that demographic trends are likely to continue on their present pathways. For example, after 23 successive years of below replacement fertility in which the fertility rate has remained in the narrow range from 1.75 to 1.98 births per woman, today, only a very brave demographer would predict another baby boom. Likewise, after 50 years of positive net migration, sustained zero or negative net migration would be seen as a most unlikely future scenario and, after 25 years of rapid increase in expectation of life, few demographers would predict higher death rates in the future. Consequently, in recent times, the range of the projections produced by the Australian Bureau of Statistics has been relatively narrow and, as argued in this paper, there are good reasons for this.

There are four components that go into the making of population projections: fertility, mortality, migration and the size and age structure of the base population. One of the central demographic lessons is that much of a population's future is contained in its present age structure which, in turn, is primarily the result of its past fertility history. In broad terms, Australia's fertility was relatively low in the 1930s and 1940s, high in the 1950s and 1960s and very low in the 1980s and 1990s. This 70-year history of fertility is very much reflected in Australia's present age structure and is the central reason that we can be absolutely certain that Australia will experience substantial ageing of its

population in the coming decades as the large number of births of the 1950s and 1960s replaces the small number born in the 1930s and 1940s at the older ages, while, at younger ages, there is no increase in the size of age cohorts. While it is often stated that post-war immigration has kept Australia's population young, it has been shown that in fact this immigration had no impact at all on the age distribution of the Australian population (Kippen and McDonald 2000). Falling mortality rates, particularly in the past 25 years, however, have contributed to population ageing (to a lesser extent than past fertility) and variations in future mortality levels can have a significant impact on the extent of population ageing. The existing age structure is what gives population futures an 'aircraft carrier' nature, that is, once at full steam, it takes some time to change direction.

In the remainder of the paper, future directions in each of the other three components of population projections are considered before a range of projections are made to assess the potential population futures for Australia. It should be noted that the long-term projections considered here are conducted to provide a basis for discussion of population policy. The purpose is not to predict future population but to provide the evidence of what would happen to Australia's population if certain scenarios were to prevail. This allows an assessment as to whether any of these scenarios are favoured on economic, social or environmental grounds and whether policy may be able to influence future demography in the direction of any favoured scenario. The task of the demographer, therefore, is not so much to determine what scenario should be favoured but rather to provide assessments of the demographic likelihood of different scenarios. When future scenarios are set in most other disciplines, the scene-setters start with the demography, often as an exogenous factor in their models (Guest and McDonald 2001 provides a recent example). In contrast, demographers look at future demography as an endogenous consequence of what is happening in the economic, social and environmental arenas, that people's demographic behaviour is influenced by how they see their social and economic futures (McDonald 1996).

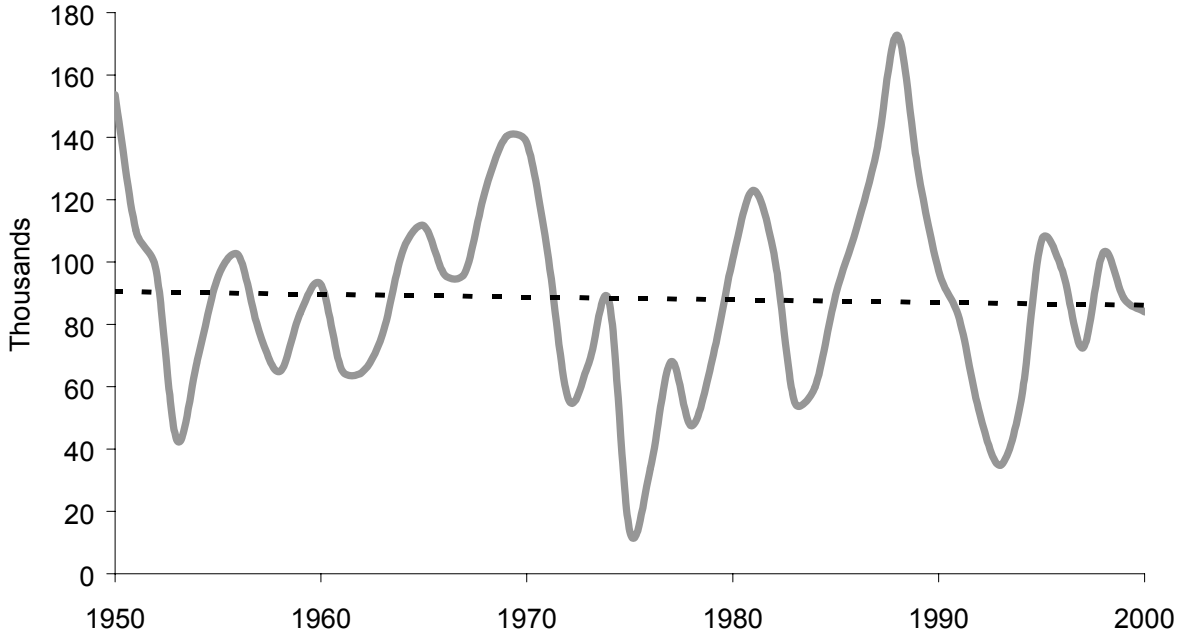
As a final introductory comment, projections of population are conventionally made at the aggregate or whole-of-society level. However, there is a strong argument that projections that consider the heterogeneity of the population will be more accurate. For example, the population of Singapore could be divided into two groups, those of Chinese ethnic origin and those of all other ethnic origins. The demography of the two groups is very different. For example, the recent fertility level of Singapore Chinese is 1.3 births per woman compared to 2.3 births per woman for the other ethnic origins. Taking this heterogeneity into account by projecting Singapore's population as two groups rather than as a single entity makes a considerable difference to the projected outcomes for the country. In the projections undertaken by the US Bureau of the Census, the varying fertility levels of different ethnic groupings is taken into account. In particular, the high level of fertility of Americans of Mexican origin has a bearing on the outcome. Heterogeneity that could be considered in Australian population projections might be in the form of ethnicity, education or region. Such heterogeneity is not taken into account in this analysis.

1.3 Net international migration

The level of net international migration for Australia is shown in figure 1.1 for the period 1950-2000. It is evident from the graph that net migration has fluctuated fairly widely around a mean between 80,000 and 90,000 per annum. Note that net migration does not include short-term movements (12 months or less) into and out of Australia, but it does include long-term temporary migration (refer section 1.4) as well as permanent migration. There is a theory that the level of net migration follows the rises and falls in the economic cycle and this is generally confirmed by the movements shown in figure 1.1 with troughs appearing around the early 1960s, the mid 1970s, the early 1980s and the early 1990s. Nevertheless, in the entire period, net migration has been positive and almost always above 60,000 per annum. In terms of peaks, net migration has rarely been above 120,000 per annum. Since 1995, the level of net

migration has been relatively stable fluctuating relatively narrowly around the long-term mean of about 85,000.

Figure 1.1 Annual Net Migration, Australia, 1950–2000



There is a debate about whether migration should be projected forward as a number or as a rate or percentage of the total population (McDonald and Kippen 2002; Withers 2002). In the 1950s, a one per cent of population target rate was set for net migration, but in the past 50 years, experience has been more consistent with a constant number than with a constant rate. In recent years, the rate has fallen to about 0.43 per cent of population and this is one of the highest rates of net migration of any country in the world. To be at one per cent today, Australia's net migration would have to be 194,000 per annum, a level way above any ever experienced in Australia. Furthermore, if we were to assume constant rates of migration at each age rather than for the total population, we would end with a result not far different from a constant number because most of the future increase in population will be at ages 50 years and over at which ages, net migration rates are close to zero (McDonald and Kippen 2002).

For most of the years shown in figure 1.1, net migration is roughly equivalent to net permanent migration, that is, net long-term temporary migration has been close to zero. In recent years, however, net permanent migration has been around 50,000 per annum while total net migration has fluctuated between 80,000 and 100,000. This has occurred because the number of long-term arrivals in Australia has been rising sharply. While the number of long-term departures has also been increasing, there is an average three-year lag between long-term arrivals and departures that creates an increasing stock of long-term visitors in the population of Australia. For net migration to remain at around 80-90,000 per annum while net permanent migration remains at 50,000 per annum, the upward trend in long-term visitor arrivals would have to continue indefinitely to reach very large numbers in the longer term. As such a trend is unlikely, continuation of net migration at 80-90,000 per annum or higher implies long-term increases in future levels of net permanent migration.

To cover the range of possible future levels of net migration, this paper assumes a future minimum level of 40,000 per annum. This is based on the history shown in figure 1.1 and the argument of the last paragraph that the present emphasis on long-term temporary migration leaves open the possibility of somewhat lower future levels of net migration. There are strong arguments, however, that future governments would not accept net migration at this low level over a long period of time. Thus, with one proviso, this is an unlikely outcome. The proviso is that the Australian economy remains vibrant. In recent years, there has been a quantum leap in the level of international competition for skilled immigrants. In 1999 and 2000, net migration to Germany, the United Kingdom and Italy combined, has been six times the level of net migration to Australia (Eurostat 2001). Thus, these countries, once great providers of migrants to the New World, have turned to become major net receivers of immigrants. Because of low fertility rates, many more countries will be seeking immigrants in the future. However, Australia remains a highly favoured destination and a change in this situation is only likely to occur if there is a major, long-term downturn in the Australian economy. Nevertheless, similar countries like New Zealand and Canada are struggling to maintain their net migration levels as their workers are attracted away to the

neighbouring economies. For example, estimated emigration from Canada increased from 25,000 in 1994-95 to 62,000 in 1999-2000 (Statistics Canada 2001: 39) and, in the same period, permanent and long-term emigration from New Zealand increased from about 40,000 in 1994-5 to 79,000 in 2000-2001 (Statistics New Zealand 2002). New Zealand has now had three successive years of net loss from permanent and long-term migration despite having had a large scale immigration programme. Permanent departures from Australia stood at about 30,000 per annum for many years but had risen to 41,000 by 2000.

As a future maximum level, a rate of 0.67 per cent of population is assumed. This implies a level of net migration at present of about 130,000 per annum, a level that would rise to around 207,000 per annum by 2050 based on the projections made in this paper. At 130,000 per annum, net migration would be near the peak levels reached in only a few years in the past 50 years. Subsequent rises above this level would take us well beyond the bounds of our past experience. Thus, with the present state of knowledge, this must be considered to be an absolute maximum, unlikely to actually eventuate.

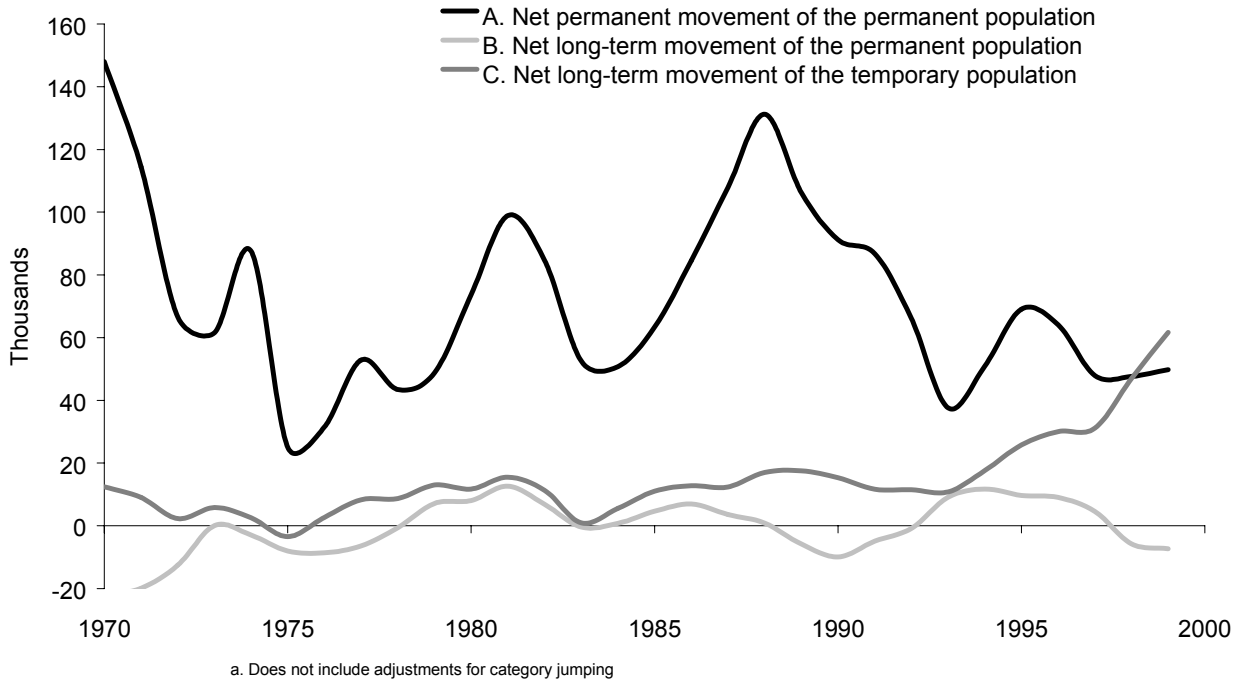
As a comparator, a level of 80,000 net migration is taken. This is roughly the average of the past 50 years and of the past decade. Present government policy also seems to favour net migration around this level (Ruddock 2000).

1.4 Impacts of long-term temporary migration

Long-term temporary migrants are people who live in Australia for more than twelve months, but are not permanent residents. Some of our net migration at the moment is driven by the fact that the number of long-term temporary arrivals is 'running ahead' of the number of long-term temporary departures.

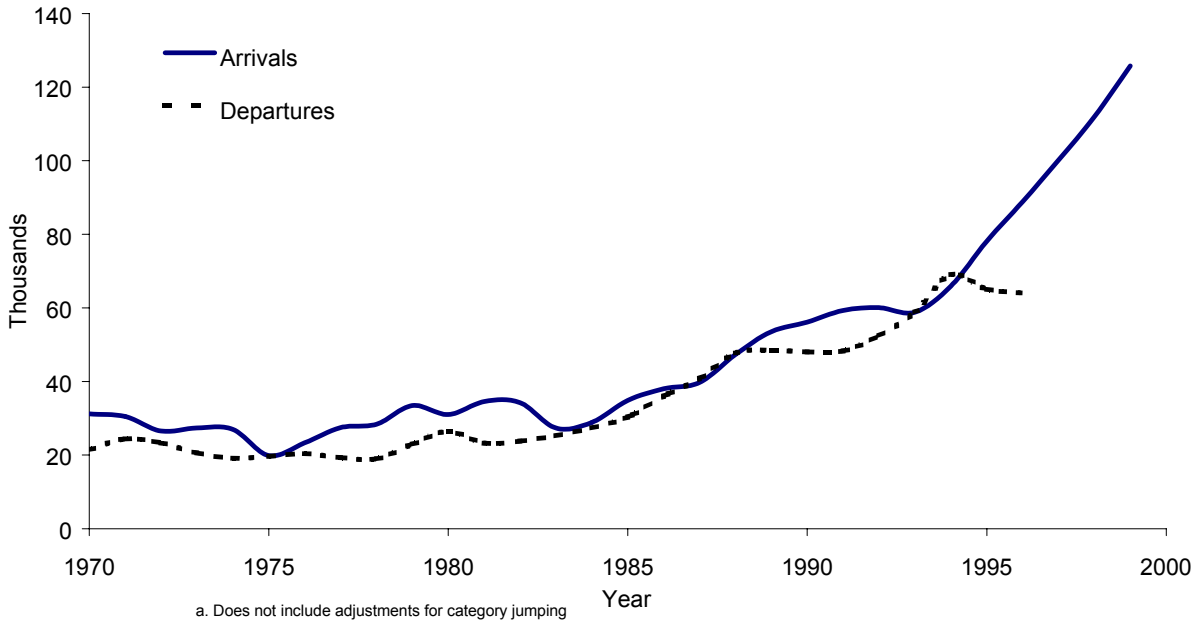
Figure 1.2 shows three movements. The top curve is the net permanent movement of the permanent population. Looking at recent times, net permanent movement is only around 50,000, yet total net migration has been about 80,000 or more. This difference is due to the net long-term movement of the temporary population. As can be seen from figure 1.2, from the 1970's to the early 1990's, net long-term movement hardly had any impact at all, ie the number of long-term arrrivals was roughly equal to the number of long-term departures. However, since then arrivals have overtaken departures and the net long-term movement has dramatically increased (refer figure 1.3).

Figure 1.2 Net overseas migration by category[a], Australia, 1970–99



a. Does not include adjustments for category jumping

Figure 1.3 Long-term visitor arrivals and departures (lagged 3 years)[a], Australia, 1970–99



Although most of these temporary arrivals leave eventually, they do tend to stay in Australia for a few years. As a result you get a gradual buildup in the temporary stock of the Australian population.

The following figures and tables provide some insights into the characteristics of long-term temporary migrants.

As can be seen from Table 1.1, the biggest group among long-term temporary arrivals are students. In particular there has been a very large increase in the number of foreign students studying in Australia for more than twelve months - both high school and tertiary. Then there are the business and employment categories, these two categories also make a sizeable contribution to the increase of temporary migration.

Table 1.1 Long-term visitor arrivals by main purpose of visit, year ended 30/6/2000

Purpose of visit	Per cent of long-term arrivals
Business	10.4
Visiting friends/relatives	3.7
Holiday	8.9
Employment	17.2
Education	48.0
Other and not stated	11.8
Total	**100.0**

Source: ABS 2001b: 68

Given that students are the largest single group, it should come as no surprise to see in figure 1.4 that the age structure of long-term temporary migrants is heavily concentrated around student ages.

Figure 1.4 Standard age-sex distribution of long-term visitor arrivals

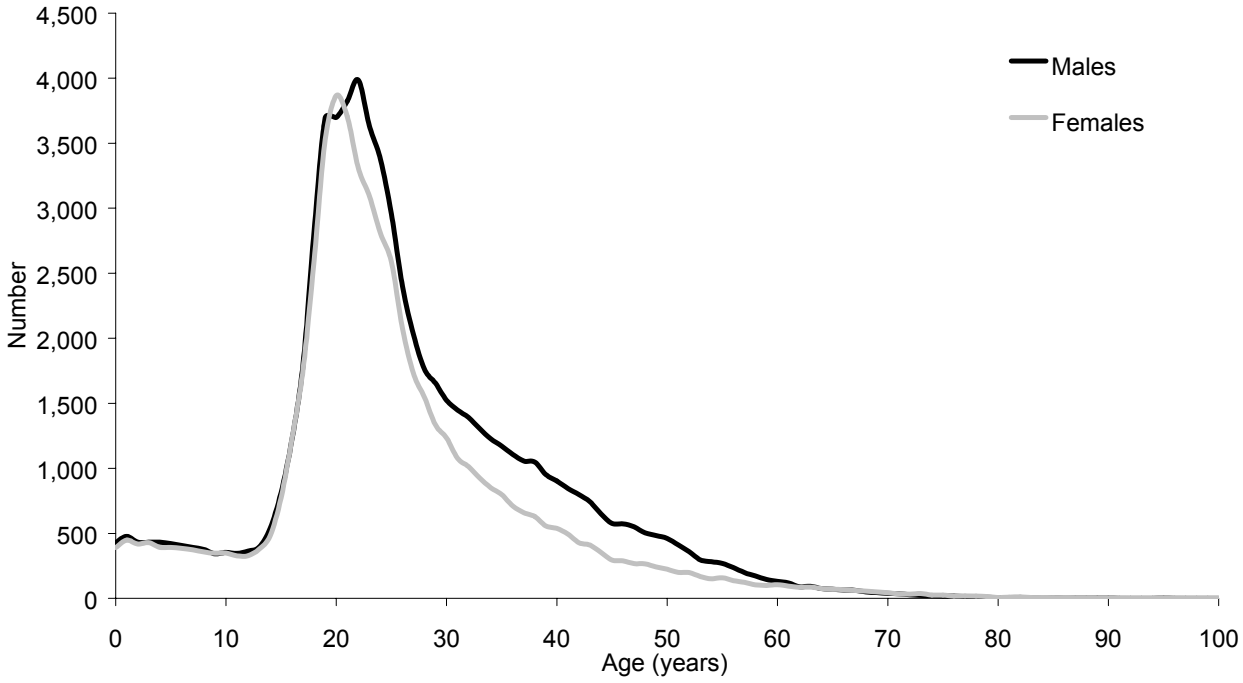
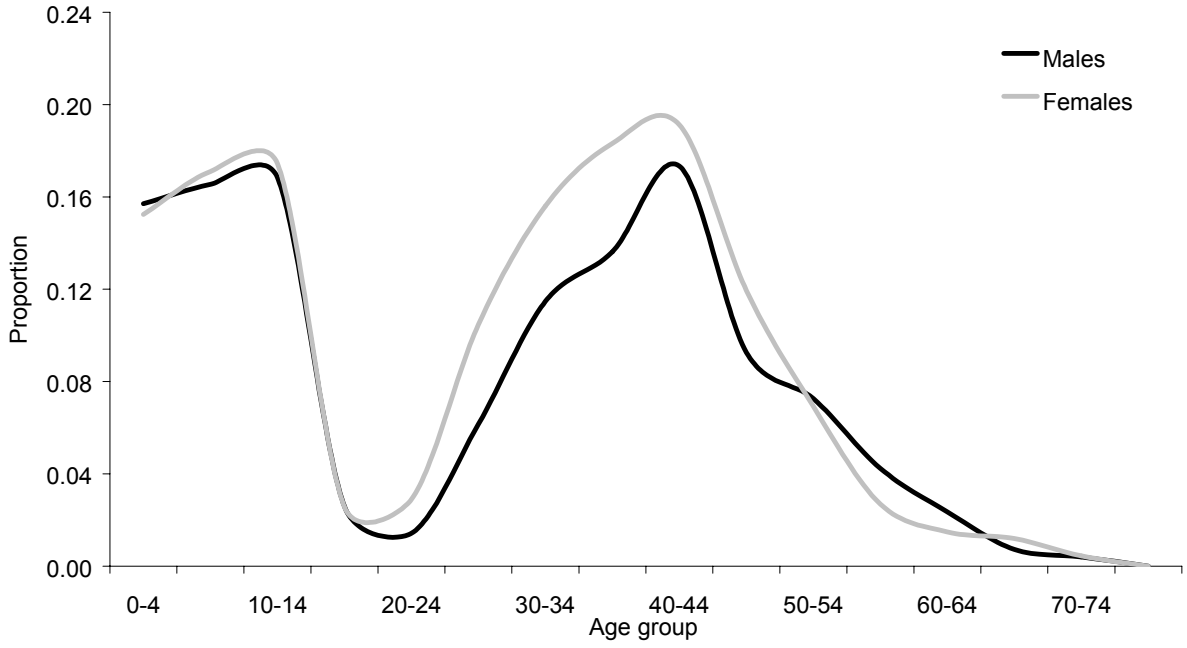


Figure 1.5 shows the percent of the long-term temporary migrants who convert onshore to become permanent - the average is about eight percent. Note, the concentrations are not in the student ages, ie the age at which most of our arrivals come in, but in the family type ages. In other words it is mainly the business people who are converting to permanent residents onshore, and this is because policy has allowed them to do so. However, policy has now changed so that some students are able to convert to permanent residency onshore. Therefore we can expect that the trough around the 20-24 year age group to rise in the future.

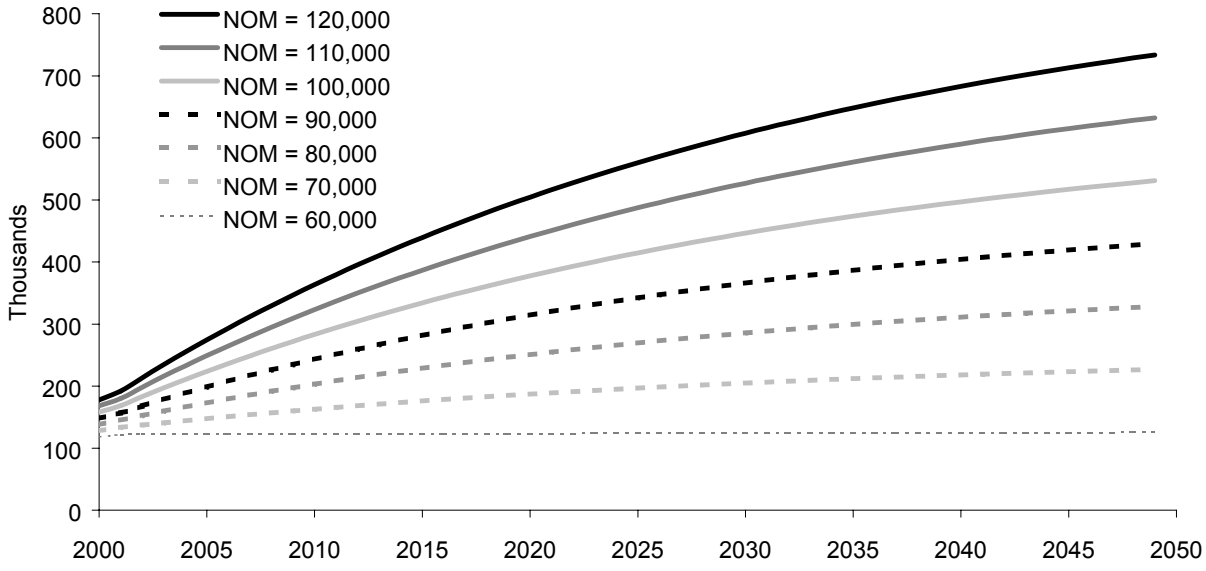
Figure 1.5 Proportion of long-term visitors becoming permanent residents, by age and sex



As already mentioned, we currently have a net migration figure of around 80,000 people of which 30,000 are a result of long-term temporary arrivals 'running ahead' of long-term temporary departures. That is the lag effect - eventually the vast majority of these long-term temporary arrivals will leave Australia. The lag effect becomes a major issue when you are making population projections.

Consider a proposed net migration scenario of 100,000 people and assume (as is currently the case) that 8 per-cent of long-term temporary migrants convert to permanent residents. figure 1.6 shows what would have to happen to annual long-term visitor arrivals if you wanted to keep net migration at this figure. As can be seen, by 2050, annual long-term visitor arrivals would need to rise very dramatically to over half a million each year. The ludicrous nature of this outcome is that not only would there need to be over 500,000 people coming into Australia, but there would also be almost that many leaving Australia. Clearly this is not a sustainable approach to net migration in the future.

Figure 1.6 Annual long-term visitor arrivals required to achieve selected levels of net overseas migration (NOM)[a], Australia, 2000-50



a. assumes net permanent migration of 50,000 and 8% of long-term visitors converting to permanent residency

In the long term, to achieve net migration figures that are higher than our current figure of 50,000 net permanent migrants, two factors therefore need to be considered -

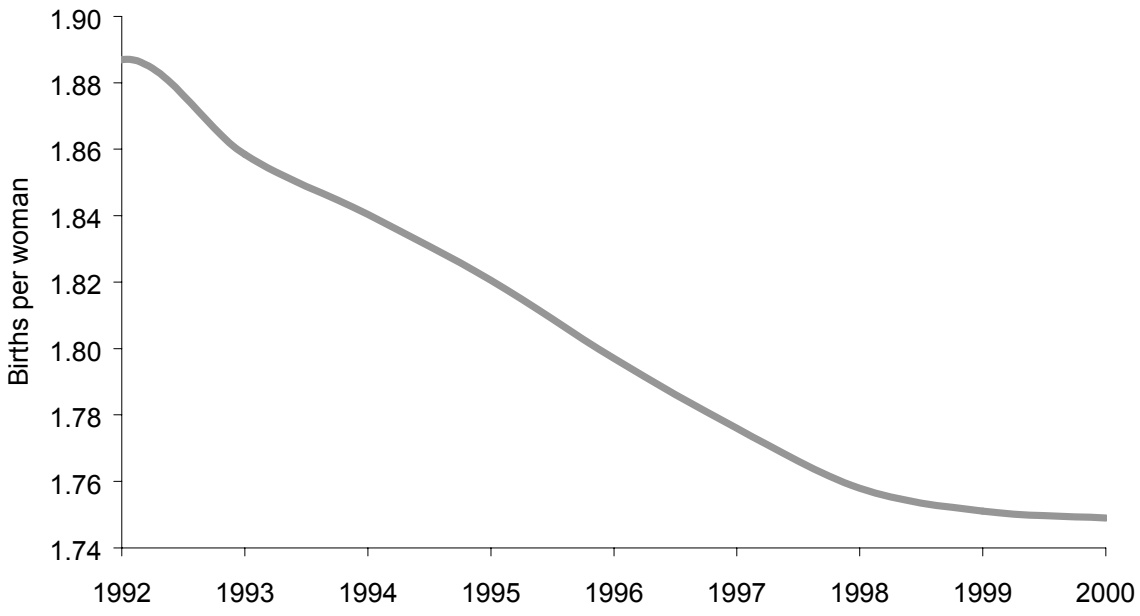
- Increase the permanent intake for Australia; and
- Increase opportunities for people to convert from long-term temporary to permanent onshore.

The government is now doing both of these things, and provided it maintains this policy, the potential problems of the lag-effect should disappear.

1.5 Future fertility rates

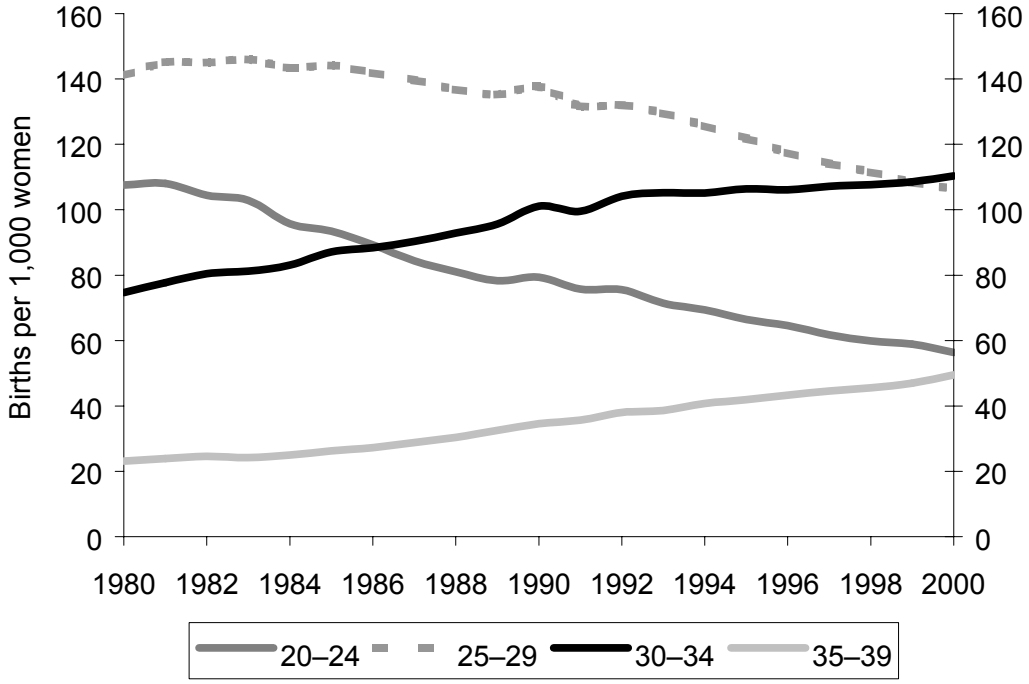
The fertility rate in 2000 was 1.75 births per woman. This is the lowest level ever recorded in Australia and fertility has been trending downwards during the past decade (figure 1.7). However, the rate in 2000 was only slightly lower than that in 1999 and this may indicate a slowing of the downward trend. After falling continuously since the early 1970s, the rate of first marriage in Australia was constant between 1995 and 2000 (McDonald 2000a). As marriage is associated with most fertility, this is another indication that the downward trend in fertility may not be sustained.

Figure 1.7 Total Fertility Rate, Australia, 1992–2000



On the other hand, examination of fertility trends by age group of woman shows strong downward trends for age groups 20-24 and 25-29 years, indicating that the delay of childbearing is continuing apace (figure 1.8). It has been argued that the increasing level of competition in the labour market means that young people today, both men and women, must invest heavily in their own human capital (McDonald 2000b). This means extending their years in education and the labour force before they 'settle down' to have children. That this trend is occurring is evidenced by the ABS Labour Force Surveys (months of July) that show that, from 1988 to 2001, the participation of women aged 20-24 years in full-time education rose in Australia from 9.5 per cent to 22.9 per cent and the participation of women aged 25-34 years in full-time work rose from 37.9 per cent to 50.4 per cent (derived from ABS 1988 and ABS 2001). Likewise, Hoem has described a remarkable shift towards education among young women in Sweden in the 1990s as the Swedish economy came under increased pressure. In 1989, 14 per cent of Swedish women aged 21-24 years received an educational allowance that is payable to all adult students (ages 20-50 years); in 1996, the figure was 41 per cent. At ages 25-28, the equivalent change was from 9 per cent to 22 per cent. A recent study in the Netherlands has shown that half of the rise in the age at commencement of childbearing in that country in the 1990s can be attributed to the change in the educational composition of the female population (Beets and Dourleijn 2001). As the education level of Australian women increases, we can expect that the age at commencement of childbearing will continue to rise. There is also research evidence to show that this deferment represents more than simply a postponement of childbearing; many births delayed are births that never occur.

Figure 1.8 Age-specific fertility rates, 5-year age groups, 1980–2000



The rise in the fertility rate at ages 30-34 years has been relatively muted since 1992 compared to its rate of rise in the 1980s (figure 1.8). This is the reason that Australian fertility has been falling during the 1990s while it was stable in the 1980s. On the other hand, a strong rise in the fertility rate at ages 35-39 years has continued and this was the principal reason for the leveling off of the Total Fertility Rate between 1999 and 2000. It is in their thirties that women make the decision about the number of children that they will have. They do this today in a context where their earning power in the labour force is considerable (compared to previous generations) and where the loss of income and opportunity through having children is also considerable. Among the advanced countries, Australia ranks near the bottom in its provisions to support women to combine work and family (Gornick et al 1998). While this remains the case, it is highly likely that the Australian fertility rate will continue to fall. The question is: how much further will it fall? The answer to this question is that it depends upon the policy makers. If Australian governments and businesses move to design a new system of

work-family support arrangements, fertility will not fall quite as much as if they persist with present arrangements (McDonald 2001). France provides a very comprehensive range of work-family benefits and, in 2000, its fertility had risen to 1.9 births per woman. It is very unlikely that Australia will follow the path of France. More likely scenarios for Australia are Canada with a fertility rate in 1997 of 1.56 (Statistics Canada 2001) and the United Kingdom with a fertility rate in 2000 of 1.64 (Eurostat 2001) despite high fertility among its ethnic groups of South Asian origin. In both these countries, fertility is still falling.

Only two projections of fertility are used in this paper. The first assumes that fertility will fall to 1.65 births per woman and then level off; the second assumes that fertility will fall to 1.4 births per woman and then level off. A fall to 1.65 births per woman over the next decade seems highly likely on present indications. Where the fertility rate heads beyond 2010 depends on policy. There is good survey evidence that Australian women prefer to have two children on average. If the conditions are put in place to enable them to have the number of children they would like to have, then fertility may not fall below 1.65.

1.6 Future mortality

Only one assumption is made about the future level of mortality in Australia for the projections in this paper. This is an assumption very similar to that used in the most recent official projections of the Australian Bureau of Statistics. In this projection, the expectation of life at birth is set to increase by one year in each successive decade. This is a slower rate of increase than has been the case in the past 25 years but the argument is made that increases from now on will be more hard won, especially because most of the gains in improved mortality will necessarily be at ages 70 years and over. There is much debate about whether expectation of life will rise more substantially in the future through technological advances such as the Human Genome project or whether, in fact, lifestyle changes at younger ages (diet, drugs, alcohol, smoking, lack of exercise and

exposure to sexually-transmitted diseases) will lead to lower levels in future. In the present state of knowledge, the standard ABS assumption is reasonable. If expectation of life rises more than assumed, the effect would be an increased population size compared to the present set of projections, but almost all of the additional people would be aged 70 years and over (McDonald and Kippen 1999a; McDonald and Kippen 1999b).

1.7 Three projections

The paper provides three projections to indicate the range of possibilities for Australia's population future:

- A standard projection with fertility at 1.65 births per woman and net migration at 80,000 per annum
- A low projection with fertility at 1.40 births per woman and net migration at 40,000 per annum
- A high projection with fertility at 1.65 births per woman and net migration set at a rate of 0.67 per cent of the total population.

The projected age distributions resulting from these three projections are illustrated in the two dynamic age pyramid graphics. The projected total population sizes are shown in figure 1.9 and the projected proportions of the population aged 65 years and over are shown in figure 1.10.

Under the standard projection, essentially a continuation of current trends, the population rises by 2050 to about 25 million and then levels off to remain at that population total. It is a population with zero population growth after 2050 (figure 1.9). The proportion of the population aged 65 years and over in the standard projection increases from 12.3 per cent in 2000 to 25.8 per cent in 2050. After 2050, the proportion at the older ages continues to rise because of the continued improvement in mortality rates, but the rise is much slower than the rise prior to 2050.

Figure 1.9 Total population, Australia, 2000–2100

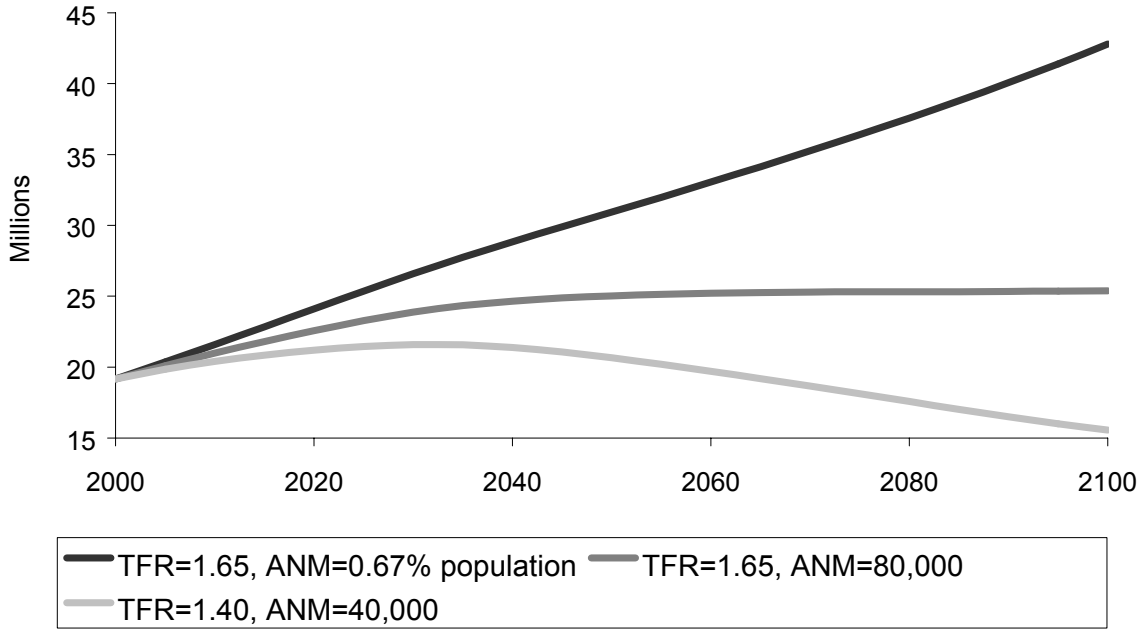
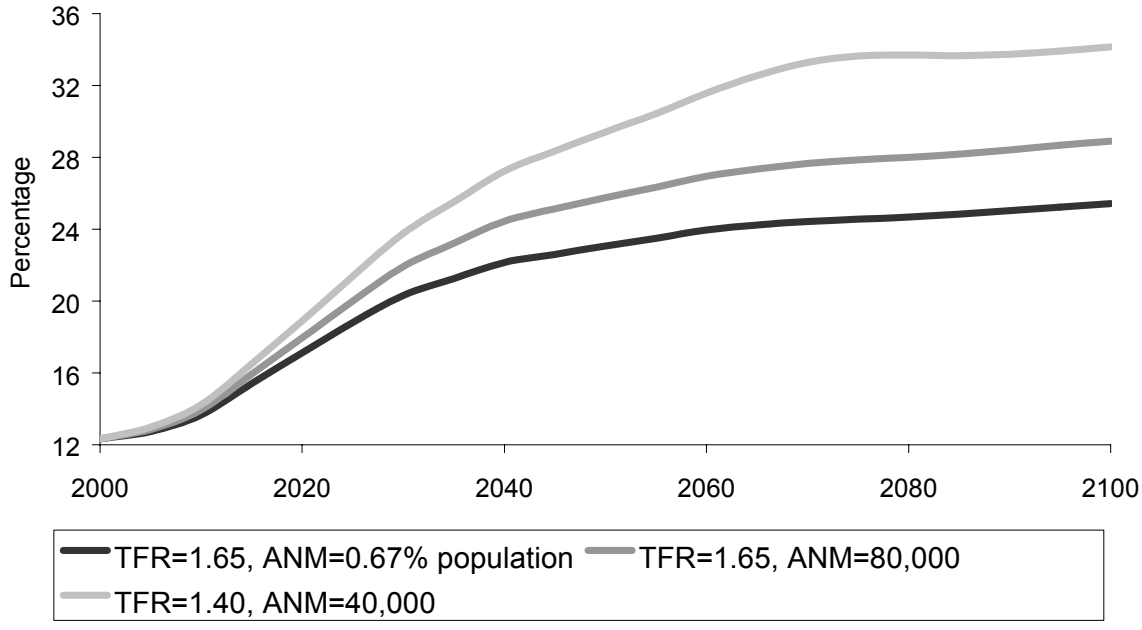


Figure 1.10 Percentage aged 65 years and over, Australia, 2000–2100



The total population in the low projection rises from 19.3 million in 2000 to a high of 21.6 million in 2030 after which it begins to fall, reaching 20.7 million in 2050 and 15.6 million in 2100. For those who would like to minimize Australia's population, this may seem like a favourable scenario, but consideration must be given both to the total population size and to its age structure. Examination of the respective projected age distributions shows that, at the older ages, the numbers in the low projection and in the standard projection would be about the same, but the numbers at the younger ages fall off very sharply in the low projection. In the longer term, as the small cohorts of the low projection move into the childbearing ages, the population begins to fall sharply, even with 40,000 net migration per annum because of the very large excess of deaths over births (about 130,000 more deaths than births by the end of the 100-year projection period). The age structure produced by the standard projection has been referred to by McDonald and Kippen (1999a) as beehive-shaped. It has a relatively favourable structure in regard to the size of the population in the labour force ages compared to other ages. In contrast, the age structure of the low projection has been labeled by the same authors as coffin-shaped, a title befitting the huge excess of deaths over births and the inevitable, eventual demise of such a population. The conclusion from these observations is that, if the aim is to achieve as small a future population as will be viable in the demographic sense, the scenario of the standard population is the sensible course. It provides a 'soft-landing' at zero population growth.

Under the high projection, the total population increases at a fairly constant rate of about 0.8 per cent per annum over the next 100 years (0.67 per cent from the assumed migration and 0.13 per cent from natural increase). The population would reach 30.9 million by 2050 and 42.8 million by 2100. These results are much more moderate than is envisaged by most of those who call for a larger population for Australia. Until recently, a catch cry for these people has been 50 million in 50 years (McDonald and Kippen 1999a). While Australia's population increased by 234 per cent between 1950 and 2000, the high projection here has it increasing by only 61 per cent between 2000 and 2050. The reason for this quantum drop in growth is low fertility. Those who call for a much larger population for Australia have not come to terms with the power of

low fertility. It must also be recalled that the high projection is based on an extremely optimistic assumption about the level of future net migration.

While net migration is set at an historically very high level in the high projection, the impact on the ageing of the population is small compared to that of the standard projection. By 2050, under the high projection, 23.1 per cent of the population would be aged 65 years and over, that is, the aged proportion of the population would almost double in the next 50 years even with a migration level beyond the bounds of likelihood. Comparison of projected age distributions shows that the age structure of the high projection would be very similar to that of the standard. Both are beehive-shaped, but one, the high projection, is a much bigger beehive. These results confirm what is well known to demographers; age structures are determined primarily by the level of fertility.

1.8 Labour force projections

Because most of the future growth of population in the standard projection is at ages 50 years and over, the growth of future labour supply is likely to be much slower than the growth of population. If the age specific labour force participation rates for men and women were to remain the same as they are today, under the standard projection the labour supply would grow from 9.6 million in 2000 to 10.9 million in 2030 after which it would remain constant at about 11 million (figure 1.11). The 13 per cent increase in the labour supply in the next 30 years contrasts sharply with the 80 per cent increase that has occurred in the past 30 years. In the past 30 years, the growth of the labour supply has been responsible for about 50 per cent of Australia's economic growth (Commonwealth Treasury of Australia 2000). Growth in the labour supply in the next 30 years will no longer be providing the same stimulus to economic growth that it has in the past. McDonald and Kippen (2001) argue that, in a global context where competitors have substantial rises in labour supply, countries experiencing falls or stagnation in labour supply will be disadvantaged because of the tendency for capital to

follow growth. The important player will be the United States where growth in the labour supply is likely to be substantial. On present trends, the US labour supply will increase in the next 50 years by three times the size of the total Australian labour supply (McDonald and Kippen 2001: 14).

Under the low projection, with constant labour force participation rates, the labour supply would hardly change at all rising to a maximum of 10.3 million by 2015 then falling to reach 8.8 million in 2050. Under the high projection and constant labour force participation rates, the labour supply would rise to 13.9 million by 2050, a 45 per cent increase in 50 years, again well below the rate of increase in recent decades. Thus, even the most optimistic assumptions about future migration cannot reproduce the labour supply growth of recent decades, again a product of low fertility. Inevitably, business in Australia must adjust to slower growth in the labour supply. While this may seem like good news for the unemployed, in the new economy, employment will be tied even more to skills than it is at present. Thus, there may be unemployment in the midst of extremely tight labour markets. A possible exception to this is employment that is driven by the ageing of the population. Service jobs for the aged will include many relatively low skilled jobs.

Figure 1.11 Labour force, Australia, 2000–2050

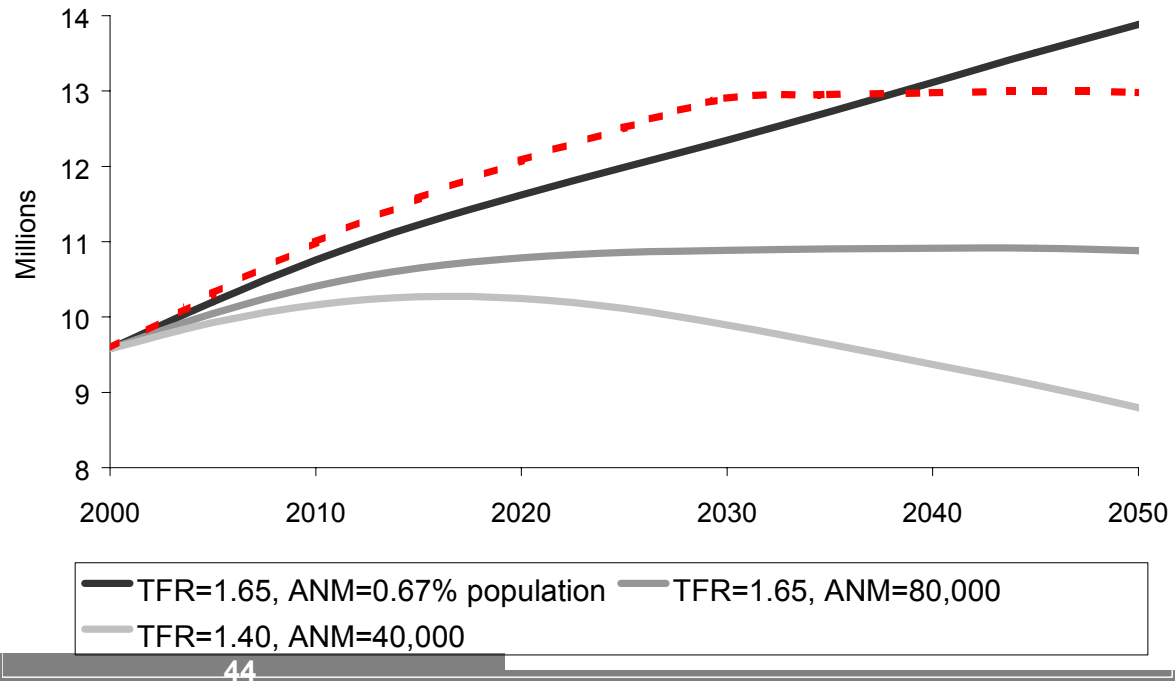


Figure 1.11 provides an alternative scenario based on increases in labour force participation rates and applied to the standard population projection. Under this scenario, labour force participation rates for men are assumed to return over the next 30 years to the levels that applied 30 years ago (about 1970). At the same time, labour force participation rates for women are assumed to rise to the levels now applying in Sweden, the highest female rates in the world. Under this scenario, the labour supply would rise to 13 million by 2030 compared to 11 million if the labour force participation rates remain constant. However, after 2030, there would be no further rise. An effort to increase labour force participation rates is a worthwhile approach in the intermediate term. However, for men, it would require a change in attitudes of employers to older workers and a change in retirement policies to provide incentives to work longer rather than to retire early. There are reasons to expect that labour force participation rates for men will increase in any case. Beyond the likely change in demand for older workers related to the tighter labour markets in the future, these include the later start to working life, the decline in manual labour and the greater likelihood that men will still have dependent children in their 50s. Women also are likely to want to continue working longer for the same reasons as men but also in order to build rights for a larger retirement income. However, if the labour force participation rates of women in the main childbearing ages are to increase, policies to support the combination of work and family will be essential. If such policies were to be applied, they may also have an impact on sustaining the fertility rate. In other words, work and family policies produce a double benefit for the economy.

1.9 Conclusion: implications for population policy

The central conclusion from the analysis in this paper is that future population options for Australia are highly constrained because of the persistence of low fertility. The paper has argued that there are good reasons to regard the standard projection as the minimum to which Australia should aspire. Projections based on lower fertility or lower

migration than the standard move Australia in the direction of the coffin-shaped age structure with future falls in population and imminent falls in the labour supply. The assumptions of the standard produce an acceptable age structure and zero population growth for the longer term. This should be the target for those who argue that Australia's population should be kept to a sustainable minimum level. If at least the standard is to be the goal, this means that efforts should be made to keep fertility from falling below about 1.6 births per woman. This will require some attention to job stability for young people and work and family policies for all parents. Net migration would also need to be sustained around the 80,000 level. To ensure that this result was achieved, the level of emigration from Australia would need to be monitored and attention would need to be given to an increase in permanent migration as temporary migration levels off. Recent government policies that promote onshore conversion from long-term temporary status to permanent status for certain categories of people are commendable in this regard.

For those who argue that Australia should be aiming for a larger population than the standard projection provides, the possibilities are much more constrained than is generally believed. The high projection produces a population of around 31 million by 2050 despite the fact that the levels of migration that are implied by this projection are likely to be unrealistically high. Those who argue for a higher population outcome than the standard provides tend to ignore the level of fertility calling only for substantial increases in the level of immigration. However, to achieve the high projection outcome, fertility must be sustained at at least 1.6 births per woman as in the standard projection. Thus the policy approaches outlined in the previous paragraph remain relevant. If, for example, the fertility rate fell to 1.2 births per woman, net migration of 200,000 per annum every year from next year onwards would be required simply to achieve zero population growth in the future (Table 1.1). The very high levels of migration implied by the high projection would involve a trade-off between numbers and skill levels that might not be sustainable. In the late 1980s, when net migration exceeded 150,000 in two successive years, the average skill level of the immigrants was low by the standards of recent years and many of the new immigrants were unemployed for many years. To

achieve the outcomes of the high projection, net migration would have to increase immediately to 130,000 per annum and would rise to levels above 150,000 per annum within 30 years, a level approached in only three years of the past 50 years. This may be possible but it is certainly on the edge of possibility given current circumstances.

Table 1.2 Combinations of fertility and migration leading to population near-stationary within 50 years, with selected population outcomes for the year 2100.

Fertility rate	Annual Net migration ('000)	Population (millions)	Average age of 20-64 year olds	Proportion of population aged 20-64
1.0	285	35	44	53
1.1	235	32	44	53
1.2	200	30	44	53
1.3	165	28	44	52
1.4	135	27	43	52
1.5	105	25	43	52
1.6	85	25	43	52
1.7	60	24	43	51
1.8	40	23	43	51
1.9	20	22	43	51
2.0	0	21	43	50

In summary then, the likely levels of population for Australia over the next 50 years range from about 25 million to 30 million with the weight of likelihood much more at the lower end than at the higher end. In these circumstances, policies designed to increase labour force participation rates seem desirable.

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